CASE STUDIES

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FOCUSNET TECHNOLOGY SaSe SDWAN EMPOWERING CONNECTIVITY

Replacing MPLS with Cato SaSe SD-WAN

Matthieu Cijsouw
Global IT Manager

CENTRIENT Pharmaceuticals

Centrient Pharmaceuticals is a global pharmaceutical company and a leader in sustainable antibiotics, next-generation statins, and antifungals.

Stuart Gall
Infrastructure Architect, Network and Systems Group

Paysafe:

Paysafe is a leading global provider of end-to-end payment solutions.

Nathan Trevor
IT Director

SANNE

Sanne Group is a global provider of alternative asset and corporate administration services.

Paul Burns
IT Director

HUMPHREYS & PARTNERS ARCHITECTS, L.P.

Humphreys & Partners Architects is an architectural services firm based in Dallas.

Matthieu Cjisouw
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Before SaSe SD-WAN

Locations & Connectivity

DSP had a global MPLS service connecting its Netherlands datacenter with nine manufacturing and office locations across China, India, the Netherlands, Spain, and Mexico.

Local Internet breakouts secured by onsite firewall appliances provided access to the public Internet, Office 365, and other SaaS applications. Internal applications, SAP, VoIP, and Azure traffic were sent across MPLS to DSP's datacenter, which had an ExpressRoute connection to Azure. Five small locations across the USA, Moscow, Cairo, Mumbai VPNed across the Internet to India or the Netherlands office.

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Cutting Costs While Quadrupling Capacity

MPLS Challenges

Performance

> "Users noticed that MPLS was slow. It took a long time for them to open documents."

As with many enterprises, the IT team at Centrient Pharmaceuticals grew tired of the limitations of MPLS. Performance across the company's 10-site, global network was for the most part "solid," says Matthieu Cijsouw Global IT Manager at DSP.

But as the applications' capacity requirements grew, increasingly the MPLS service was becoming congested.

Deployment

> "One time, we needed to move a sales office, and the MPLS connection was simply not ready in time. It led to operational issues and difficult workarounds. Needless to say that was not appreciated by the business."

Agility was also limiting DSP. It typically took him three to four months to move a location, a bit faster in Europe.

The Cato Experience

Performance

> "We did load balancing, failover tests, and load tests and the SaSe SD-WAN passed them all."

Production load was tested to see if there would be any hiccups. Not only weren't there any problems, but users noticed that applications were even more responsive.

Deployment

> "It only took us about a month, the actual cutover was done in 30 minutes."

Cost

> "MPLS is about 4x more expensive for a quarter of the bandwidth."

Matthieu Cjisouw
Global IT Manager

Users noticed that MPLS

As with many enterprises, the IT team at Centrient Pharmaceuticals grew tired of the limitations of MPLS. Performance across the company's 10-site, global network was for the most part "solid," says Matthieu Cijsouw Global IT Manager at DSP. But as the applications' capacity requirements grew, increasingly the MPLS service was becoming congested.

"Users noticed that MPLS was slow. It took a long time for them to open documents," he says. The high cost of MPLS bandwidth made upgrading global bandwidth unrealistic.

"MPLS was about 4x more than Cato for a quarter of the bandwidth," he says.

And bandwidth wasn't the only problem. Agility was also limiting DSP. It typically took him three to four months to move a location, a bit faster in Europe. "One time, we needed to move a sales office, and the MPLS connection was simply not ready in time. It led to operational issues and difficult workarounds," he says, "Needless to say that was not appreciated by the business."

DSP Evaluates SD-WAN Alternatives

As his MPLS contract came up for renewal, Cijsouw started looking into SD-WAN. A technology partner recommended a combination of SD-WAN appliances, firewalls, and secure web gateways (SWG). But Cijsouw thought the solution would be too complex and was troubled by the dependence on the Internet middle-mile.

"Internet performance from many regions, particularly China mainland, fluctuates significantly during the day," he says, "we wanted a middle-mile solution."

Global SD-WAN service providers, such as Cato, replace MPLS (and the Internet middle-mile) with an affordable MPLS alternative. The Cato Cloud Network is a global, geographically distributed, SLA-backed network of PoPs, interconnected by multiple tier-1 IP backbones. Cato dynamically selects the optimum IP backbone for every packet giving Cato Cloud better performance and uptime than any one of the underlying networks.But while Cato Cloud provides global connectivity at Internet-like prices that's not the case for every global SD-WAN service provider.

"The other provider's service would have meant spending around 2x more than with the Cato solution and still not get any of the security services Cato offers."

After meeting with the Cato team, he decided to run a proof of concept (PoC). Cato Sockets, Cato's zero-touch, SD-WAN appliances, were installed in three locations alongside the existing MPLS circuits. Firewall rules steered traffic from specific hosts onto the Cato Cloud.

"We did load balancing, failover tests, and load tests and Cato passed them all," he says.

During the next phase, he put a production load on Cato Cloud to see if there would be any hiccups. Not only weren't there any problems, but users noticed that applications were even more responsive, he says.

Like many enterprises, there was initially some concern about moving the global backbone to a startup. "For a pharmaceutical company, it's not very normal," says Cijsouw. He convinced management of the Cato Cloud's value and showed how he could minimize risk.

"We migrated to Cato in stages, gaining confidence along the way," he says, "Even with a full deployment, I can bring up a global, site-to-site VPN in two hours should something happen, but I don't see that as a concern. Not only does Cato Cloud perform well, but the support Cato offers is insanely great. I never experienced such a fast response."

Matthieu Cjisouw
Global IT Manager

CENTRIENT Pharmaceuticals

DSP Switches from MPLS to SaSe SD-WAN

In the end, he decided to move all MPLS locations to Cato Cloud. “It only took us about a month,” Cijsouw says, “The actual cutover was done in 30 minutes.” Most locations had been equipped with 6 Mbits/s MPLS connections. He replaced those with two, and in some cases, three local Internet connections for an aggregate capacity of 20 Mbits/s per site, burstable to 40 Mbits/s. Datacenter capacity is even higher, up to 50 Mbits/s, burstable to 100 Mbits/s — enough for current usage.

> “The voice quality of Skype for Business over Cato Cloud has been about the same as with MPLS but, of course, at a fraction of the cost.”

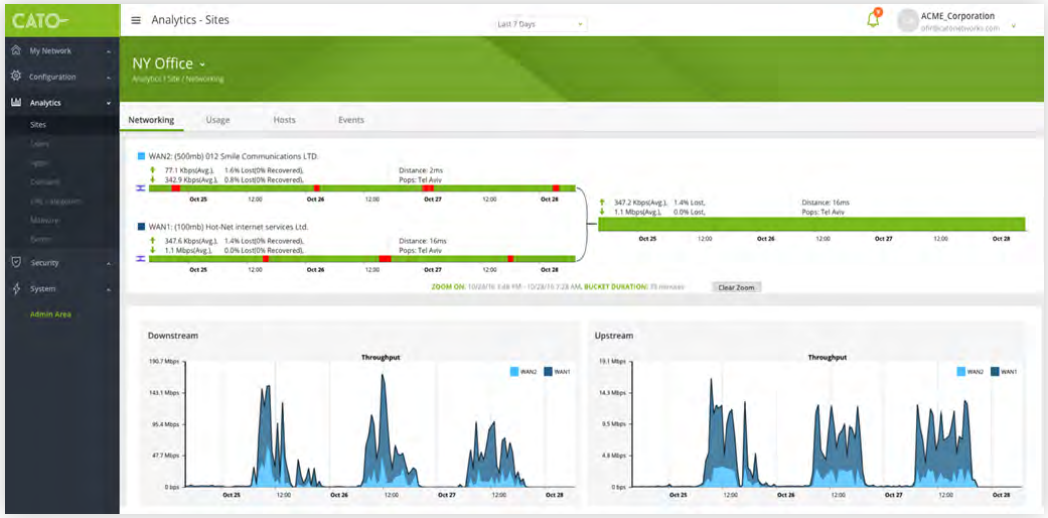
The additional connections were dual-homed for maximum availability. To ensure complete redundancy in the physical layers (including wiring and ducting), Cijsouw followed best practices and connected sites to the Internet with separate technologies — typically glass fiber and radio connections.

Not only has he reduced his costs, but with more capacity, his applications continue to perform as well, if not better, than with MPLS. “The voice quality of Skype for Business over Cato Cloud has been about the same as with MPLS but, of course, at a fraction of the cost”, he says. “In fact, if we measure it, the packet loss and latency figures appear to be even better.” His connections into China also work equally or “even better” than with MPLS, he says. And with Cato Cloud, he gained greater visibility into his network. The reporting is very “accessible” with detailed statistics on line usage, he says.

A More Agile Future With A Managed SaSe SD-WAN

As Cijsouw looks ahead, Cato Cloud will afford him flexibility — and negotiating strength — in other areas of his network. His firewall appliances, for example, are coming up for renewal in a year. Besides providing site security, they also serve as his mobile access solution. With Cato Security Services and Cato’s mobile client bundled with Cato Cloud, he could replace both and save on licensing and operational costs. “Today, we outsource firewall maintenance for about 25 percent of our networking budget,”

Overall, how would he summarize his Cato experience? “It’s been really excellent,” he says. “Product delivery, support have all been there. With Cato Cloud, not only did I receive a more agile infrastructure, but I also received an agile partner who can keep up with my needs. We operate faster because of Cato.”



With Cato Cloud, DSP gained deep visibility into network performance

Stuart Gall
Infrastructure Architect,
Network and Systems Group

Paysafe:

Paysafe is a leading global provider of end-to-end payment solutions.

Before SaSe SD-WAN

Locations & Connectivity

The company has over 2,600 employees in 21 locations around the world, connecting businesses and consumers across 200 payment types in over 40 currencies.

Paysafe maintained two corporate datacenters with 50 Mbits/s circuits into a global MPLS network and local, secure Internet access. Datacenter services, specifically Amazon Web Services (AWS) Elastic Compute Cloud (EC2), and cloud applications, such as Microsoft Office 365, were also used.

The remaining 19 locations consisted of four offices with MPLS circuits and local Internet access, and another 15 with Internet-based virtual private networks (VPNs). Internet connectivity ranged from 25 Mbits/s to 500 Mbits/s, depending on the location.

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FOCUSNET TECHNOLOGY SaSe SDWAN EMPOWERING CONNECTIVITY

Replace Global MPLS Network and Internet VPN with SaSe SDWAN

MPLS Challenges

Accessability

> We wanted the same access everywhere. If I'm in Calgary and go to any other office, the access must be the same — no need to RDP into a machine or VPN into the network. You can do that only with network standardization."

Executives and users at the global provider of end-to-end payment solutions were fed up with being unable to access corporate resources when visiting Paysafe offices. User mobility became a strategic imperative.

Deployment Agility

> Deploying MPLS sites was a nightmare. Depending on where you are in the world, you could require two to three months of lead time."

Performance

> Latency proved significantly higher with an Internet VPN."

Aside from the configuration and implementation challenges, Stuart didn't think Internet-based VPN would meet his performance requirements.

The Cato Experience

Performance

> During our testing, we found latency from Cambridge to Montreal to be 45% less with Cato Cloud than with the public Internet, making Cato performance comparable to MPLS"

Deployment

> Cato Socket deployment takes no more than 30 minutes — including unboxing."

Cost

> They were shocked that we could dismantle MPLS, add more than twice as many locations, and save money."

Stuart Gall
Infrastructure Architect, Network and Systems Group

Paysafe:

Full Meshing: A Challenge For Many Enterprise Networks

All too often, WAN transformation projects reduce costs and improve IT agility so significantly that end-user benefits can be missed. But with the Paysafe Group, user impact was precisely what drove the need for a better WAN.

Executives and users at the global provider of end-to-end payment solutions were fed up with being unable to access corporate resources when visiting Paysafe offices. User mobility became a strategic imperative.

"If someone moves to a different office and has to use a mobile VPN, our technology has failed."

"We wanted the same access everywhere," says Stuart Gall, Infrastructure Architect in Paysafe's Network and Systems group. "If I'm in Calgary and go to any other office, the access must be the same — no need to RDP into a machine or VPN into the network. You can do that only with network standardization."

The problem arose primarily due to the lack of a fully meshed network. Various mergers and acquisitions (M&As) left Paysafe with a backbone built from MPLS and Internet-based VPN, making direct connectivity between all locations unfeasible.

Establishing a fully meshed Internet VPN would have necessitated 210 tunnels, Stuart notes, requiring an enormous amount of time to build and monitor. Instead, Paysafe administrators ended up "VPNing" only into the locations needed for normal user connectivity.

Without a full mesh, Active Directory (AD) operation became erratic, with updates from the distributed AD domain controllers propagating too slowly, if at all. Users found themselves locked out of some accounts in one location but not another, explains Stuart.

The VPN configuration in particular complicated IT. "Invariably we'd have someone at a site needing connectivity to a different location, forcing a re provisioning process. That could take weeks of work with approvals and all." Users ended up relying on the company's mobile VPN solution, which just didn't sit right with Stuart.

"If someone moves to a different office and has to use a mobile VPN, our technology has failed," he says. "Users might just accept that as normal, but as an engineer, I know we need to be better. We need to go that extra mile; we need that 'wow factor.'"

Rolling out new locations was no better with MPLS. "Deploying MPLS sites was a nightmare. Depending on where you are in the world, you could require two to three months of lead time," he says.

Internet-Based VPN Not the Answer

Stuart knew he needed a single, fully meshed backbone, and neither MPLS nor Internet-based VPN was the answer.

Moving all locations to MPLS was too expensive. In fact, MPLS' high costs were so well known that business leaders expected the same from SD-WAN. "They were shocked that we could dismantle MPLS, add more than twice as many locations, and save money," he recalls.

The opposite — transitioning all offices to an Internet-based VPN — was unrealistic. Aside from the configuration and implementation challenges, Stuart didn't think Internet-based VPN would meet his performance requirements. "Latency proved significantly higher with an Internet VPN than with Cato — maybe that's because of the Internet, or maybe it's the encryption engine."

Relying on his routing and Dynamic Multipoint VPN (DMVPN) wouldn't work either. For one, it meant being locked into one manufacturer for networking equipment at every location. Deployment would be an issue as well. "Configuring a simple DMVPN is straightforward, but setting up a DMVPN that fails over to secondary ISPs with the level of service you get with Cato is quite complicated," he says. "You can easily have unexpected flaws, such as failover scenarios. This is especially true at the hub site, where you might take out the entire network."

"Invariably we'd have someone at a site needing connectivity to a different location, forcing a reprovisioning process. That could take weeks of work with approvals and all."

Paysafe Evaluates SD-WAN Architectures

SD-WAN was the logical option, and Stuart ended up evaluating the leading SD-WAN appliances and services, including Cato Cloud.

"The biggest eye-opener for me was that there are two completely different technology architectures called 'SD-WAN,'" he says. "Some don't provide the infrastructure, only doing intelligent routing over your own network or the Internet, while others include the infrastructure."

Stuart Gall
Infrastructure Architect, Network and Systems Group

Paysafe:

Paysafe Adopts Cato

Ultimately, Paysafe replaced its MPLS services and Internetbased VPN with a single, converged network — the Cato Cloud. The company has connected eleven sites to Cato with three on the way and another seven to go. With Cato, performance is much better than with Internet VPNs and on par with MPLS — at a fraction of the price.

"During our testing, we found latency from Cambridge to Montreal to be 45% less with Cato Cloud than with the public Internet, making Cato performance comparable to MPLS."

Beyond performance, Paysafe has seen significantly faster deployment. "Instead of spending weeks bringing up a new site on MPLS or even a VPN, Cato Socket deployment takes no more than 30 minutes — including unboxing." Full-meshing problems are no longer, as all locations instantly mesh once they connect into Cato Cloud.

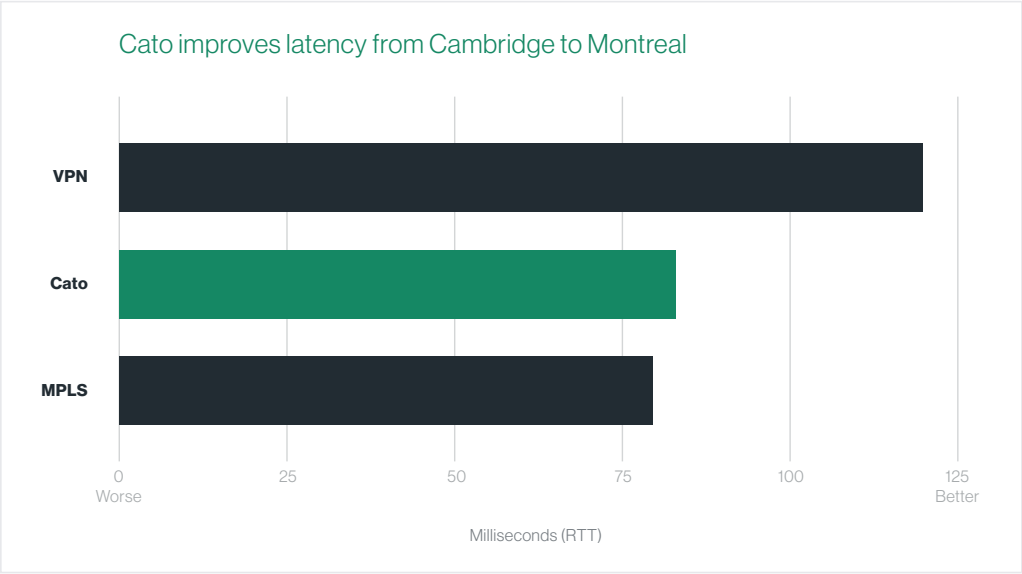
Stuart has discovered Cato's incredible flexibility too. With native cloud support, Cato Cloud easily extends to IaaS or SaaS services. "Cato's EC2 connector is easy to set up, and I expect to use it to connect our AWS datacenter into the Cato SD-WAN," he says. Cato also natively optimizes the delivery of cloud applications.

As for competing SD-WAN services, Stuart had concerns about security, availability, management, and cost. "One global SD-WAN service provider was twice as expensive as Cato," he says. Stuart also preferred how Cato enrolled new locations. "The way the other SD-WAN service provider handled security was appalling," he says. "Cato's security background comes through."

Cato had other advantages as well, such as availability. "In the worst-case scenario, if there were a countrywide outage, my Cato locations would automatically reconnect to the closest point-of-presence (PoP). Latency might be screwy, but at least we'd have connectivity. The other provider? Its locations would be down and require provider intervention to fix."

For Paysafe, the answer was obvious. "We didn't want a routing management solution; we wanted a core network with lower latency."

With Cato, Stuart can monitor, manage, and troubleshoot outages and problems himself. "The other SD-WAN service was managed only by the provider. There's a nice visibility console but no control. Any changes require opening trouble tickets with the provider; it's very carrier-like. With Cato, we can fully manage the SD-WAN ourselves or tap its support."



"We use Office 365 and plan to connect the India office and possibly North America via Cato as well." Cato flexibility is particularly helpful with M&As, where new networks require assimilation into the WAN. "Previously, when migrating new users from an M&A onto our network, there would be months of frustrating inability to access certain resources," says Stuart.

"We needed time to add the necessary connectivity. Overlapping IP ranges meant there were resources that couldn't be immediately advertised," he explains. "With Cato, we can easily tweak the routing at the host level to compensate, giving new users the access they need from day one."

Stuart Gall
Infrastructure Architect, Network and Systems Group

Paysafe:

With Cato," says Stuart, "we can connect our twenty-one sites and still save 30% on costs compared to our six-site, MPLS network."

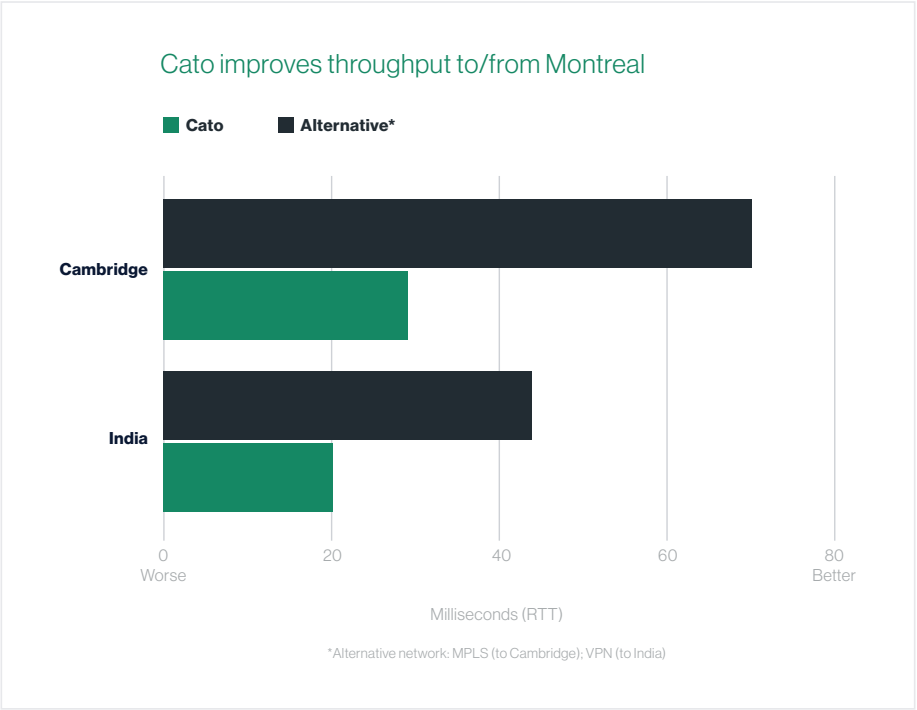
Whether he's merging networks or just managing a global one, Stuart benefits from Cato's easy support model. "I love the way I can open a ticket by clicking a button in the portal," he says.

Paysafe had already adopted security and mobility solutions before hearing about Cato, but those capabilities are built into Cato Cloud, giving Stuart peace of mind and room to grow.

"Cato's mobile VPN is my secret BCP [business continuity plan] in my back pocket. If my global network goes down, I can be like Batman and whip this thing out."

Bottom Line

The bottom line is that Cato is good for, well, the bottom line. "With Cato," says Stuart, "we can connect our twenty-one sites and still save 30% on costs compared to our six-site, MPLS network." Cato pricing also provides flexibility. "Cato lets us move bandwidth within the same billing domain. If I close a location, I don't lose the outstanding funds for that term. I just allocate the paid bandwidth to a different location. With MPLS, I'm locked into a three-year contract at each location, even if I just have to move one down the road."



Data transfer testing between Montreal, Cambridge, and India also showed impressive results. Cato Cloud doubled the throughput of MPLS and Internet-based VPN.

Nathan Trevor
IT Director

SANNE

Sanne Group is a global provider of alternative asset and corporate administration services.

Before SaSe SD-WAN

Locations & Connectivity

The company had two datacenters in Jersey, UK and Guernsey, UK connected by dual, 1 Gbits/s fiber links. Seven locations connected to the datacenters via the public Internet — three in the Asia-Pacific, one in Dubai, three in Europe. An office in Malta had an IPsec VPN to Cape Town, which is connected to Jersey using MPLS. A business continuity site in Hilgrove, UK, and two other UK locations, had dedicated fibers into the datacenters.

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FOCUSNET TECHNOLOGY SaSe SDWAN EMPOWERING CONNECTIVITY

Replace Internet and MPLS, Simplifying Citrix Access and Improving Performance with SaSe SD-WAN

MPLS & Internet Challenges

Performance

“With the Internet, we could take a fast route one day and the next day be sent around the globe.”

Deployment

“If you factor in the other issues with getting the Cape Town office up and running that would be a total of 120 days to connect the site.”

Cost

“For a single MPLS circuit from Cape Town to Jersey, the provider quoted us 180,000 pounds (more than $250,000) per year for three years.”

The Cato Experience

Performance

“With Cato, latency decreased by nearly 20 percent”

Deployment

“It became clear early on that Cato Cloud was much simpler to deploy.”

“Just by looking at an early screen share I could understand how to connect my sites to Cato Cloud. And working with the people at Cato was much easier: the team offered us a POC over an extended period of time.”

Cost

“I’m spending just 18,000 pounds per year for direct Internet access (DIA) with local SLAs.”

Nathan Trevor
IT Director

SANNE

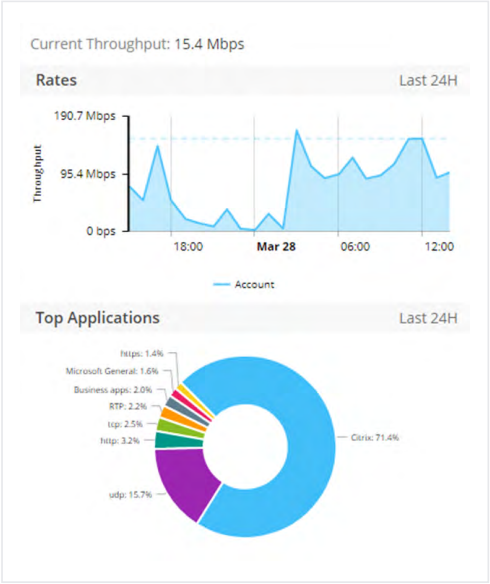
Small Offices: The Achilles Heel of Enterprise Networking

Sometimes it's the little things in networking that are the most painful. It's one thing to connect up a headquarters or large regional offices; the sheer number of users can often justify investing in the newest technologies. But small offices are another matter.

How do you provide remote two-person offices with the same responsive, easy-to-use network experience as the corporate headquarters without purchasing an expensive, managed MPLS service? That was the challenge facing the Sanne Group.

> "Often traffic from Sanne Group's Hong Kong office, would take 12 to 15 hops to reach the UK."

Many of the company's remote locations began as small offices making MPLS cost prohibitive. Instead, access was a combination of a small firewall appliance, Internet broadband, and equipping users with Citrix Virtual Desktop Infrastructure (VDI). Users would log into their computers, connect to a public-facing Citrix site, authenticate with dual-factor authentication, and only then gain access to their Citrix desktops. Not quite as simple as connecting to a local server, perhaps, but the best possible and most manageable approach.



Still, as offices grew, the limitations of such an approach became more apparent. For the most part, Citrix worked fine, but there were challenges. Printing was an issue. Users often assumed the remote desktop behaved like their local PC and printed heavys PDF that would take "forever," says Nathan Trevor, Sanne Group's IT Director.

Remote desktop architectures are also sensitive to latency and packet loss. Those performance constraints pose a problem for global Internet connections. Often traffic from Sanne Group's Hong Kong office, for example, would take 12 to 15 hops to reach the UK.

"With the Internet, we could take a fast route one day and the next day be sent around the globe," he says.

For nearby offices, Internet routing might not have mattered. "But at 6,000 kilometers your connections are very sensitive. Any packet loss or latency changes will impact throughput," he says. The Asia-Pacific sites would often run smoothly, at least until 9 am UK time. But when UK business got going "their performance would grind to halt."

Beyond application performance, there was also the problem of site availability. Many offices were equipped with dual Internet connections in active/passive mode. "If there was an outage, a person in the office had to do a manual switchover," says Trevor. And troubleshooting those outages became complicated by the lack of visibility. "In Hong Kong, for example, we had no analytics. Often, by the time we could get an engineer on-site, the problem would disappear," says Trevor, "It was like trying to run a network with your hands tied behind your back."

Sanne Group Tries MPLS

About two years ago, Sanne Group acquired an office with 150 users in Cape Town. MPLS seemed like the obvious answer. "For a single MPLS circuit from Cape Town to Jersey, the provider quoted us 180,000 pounds (more than $250,000) per year for three years," says Trevor.

> "The telco who provided the MPLS circuit required 90 days to install the circuit in Cape Town."

The circuit guaranteed Sanne Group 10 Mbits/s access with bursting up to 100 Mbits/s. SLAs were not provided but a percentage credit was issued on the length of an outage. In addition, the telco who provided the MPLS circuit required 90 days to install the circuit in Cape Town. "If you factor in the other issues with getting the Cape Town office up and running that would be a total of 120 days to connect the site — far too long for us," he says. At the time, though, his options were limited. He deployed MPLS knowing well that a better solution had to be found.

Nathan Trevor
IT Director

SANNE

Sanne Group Replaces SD-WAN Appliance Complexity for Cato Cloud Simplicity

Trevor began investigating SD-WAN, first considering an SD-WAN appliance-based solution from another vendor,"IT professionals new to SD-WAN would definitely needed handholding," he says, "Even with zero-touch provisioning (ZTP), configuration was complicated. The vendor had a GUI interface, but it wasn't straight forward at all."

Instead he turned to Cato Cloud. "It became clear early on that Cato Cloud was much simpler to deploy," he says, "Just by looking at an early screen share I could understand how to connect my sites to Cato Cloud. And working with the people at Cato was much easier: the team offered us a POC over an extended period of time." The company quickly connected its locations to Cato Cloud, eliminating the mix of Internet and MPLS connections. Performance improved significantly.

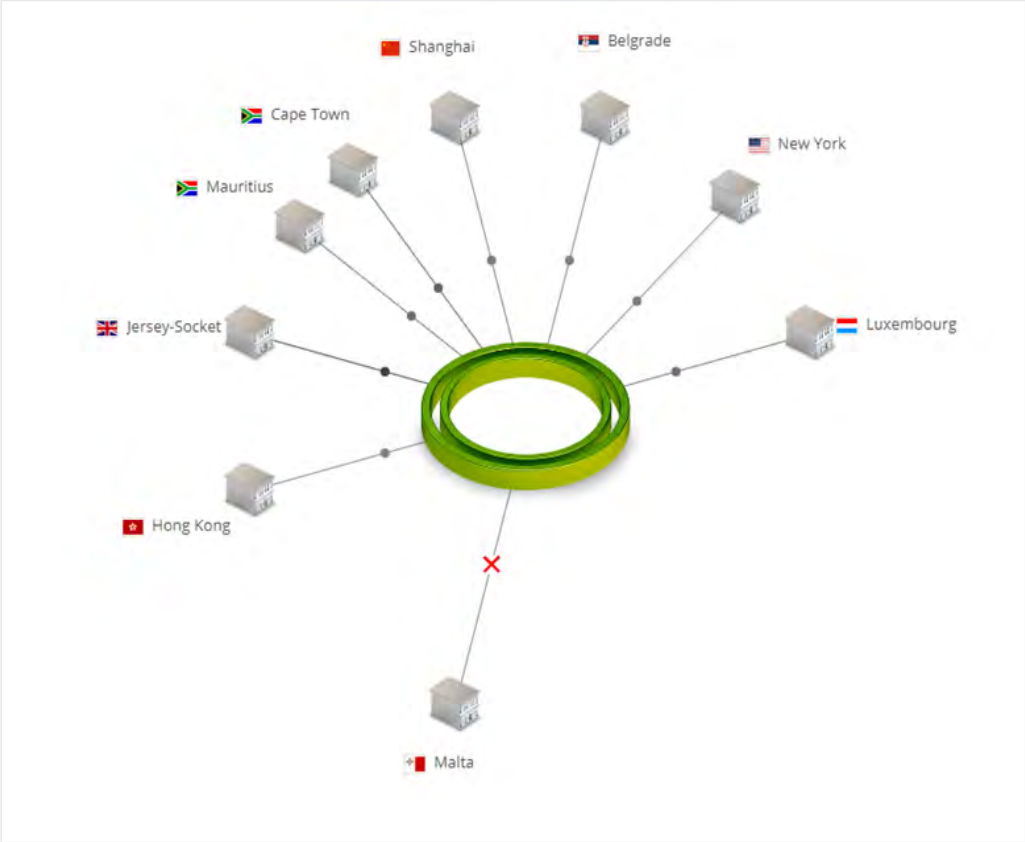
"Before we could see 250 ms of round-trip latency between Hong Kong and Guernsey. With Cato, latency decreased by nearly 20 percent" His network visibility has improved significantly. "Now I can open a Web browser and see the state of connectivity for every single site globally. I can even see down to a single person and how much bandwidth (s)he is using. Cato is powerful beyond belief."

The user experience has also improved because of Cato.

Previously, users had to authenticate twice to access Citrix — once when logging into their computers and again with dual-factor authentication when logging into Citrix. Now users only authenticate when logging into their computers. With Cato's Active Directory integration, the submitted credentials allow Cato to provide access to the appropriate resources, including Sanne Group's Citrix servers. Dual-factor authentication is available for mobile users through Cato's mobile client. "My users' experience has become much simpler because of Cato," says Trevor.

Cato has saved the company "an absolute fortune," he says. "I'd probably have to spend about 500,000 pounds for three years for an MPLS circuit of the same bandwidth from my Hong Kong office to the UK. "Instead, I'm spending just 18,000 pounds per year for direct Internet access (DIA) with local SLAs."

And since costs are more affordable, he's been able to increase redundancy, equipping locations with redundant connections. Cato Sockets, Cato's zero-touch SD-WAN appliances, runs available connections in active/active, automatically failing over should there be a brownout or blackout.



The Sanne network on Cato Cloud

Paul Burns
IT Director

HUMPHREYS & PARTNERS ARCHITECTS, L.P.

Humphreys & Partners Architects is an architectural services firm based in Dallas.

Before SaSe SD-WAN

Locations & Connectivity

The company's eight regional offices were connected to its Dallas headquarters in a hybrid WAN configuration; a ninth office connected across the Internet. Three offices ran SD-WAN appliance connected to MPLS and Internet — Dallas; Newport Beach, California; and Orlando.

Another three offices connected only with MPLS — New Orleans; Garland, Texas; and Toronto. Two locations connected only with SD-WAN appliances and Internet – Uruguay and Denver. An office in Vietnam relied on file sharing and transfer to move data across the Internet to Dallas.

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FOCUSNET TECHNOLOGY SaSe SDWAN EMPOWERING CONNECTIVITY

Replace MPLS, SD-WAN Appliances, and Mobile VPN with Cato Cloud

MPLS & Internet Challenges

Agility

"Every time we moved, our carrier wanted a three-year contract and 90 days to get the circuit up and running."

Deployment

"The configuration pages of the SD-WAN appliance were insane. I've never seen anything so complicated."

Cost & Performance

"A provider offered only a 1.5 Mbits/s MPLS connection for $1,500 a month, about the same price as his 50 Mbits/s MPLS connection in Dallas. It was a take-it-or leave-it kind of deal — so we left it."

The Cato Experience

Performance

"Now we can use a socket, a VPN tunnel, or the mobile client, depending on location and user requirements

Deployment

"We set up Uruguay in 10 minutes, because we just built a VPN tunnel through the existing firewall."

Cost

"Cato Cloud's latency and loss levels were more than sufficient for business-grade voice".

Paul Burns
IT Director

HUMPHREYS & PARTNERS ARCHITECTS, L.P.

MPLS Problems Complicate Networking

For years, MPLS services were the defacto standard for connecting company locations. And so, like many enterprises, Humphreys duly built its U.S. network on MPLS. The MPLS service gave Humphreys the predictable transport necessary for running business-class voice service, but it also brought plenty headaches.

"The problem with MPLS is that it's expensive, slow, and takes forever to get anything done," says Paul Burns, IT Director at Humphreys.

Connecting new locations took far too long, with circuit delivery requiring several months. "Ninety days doesn't fly anymore when a site is just two or three people in a garage and DSL can be delivered in a day or two," Burns points out.

What's more, MPLS wasn't agile enough to accommodate Humphreys' growth. "Many of our offices start with a few people, but then they outgrow the space. Every time we moved, our carrier wanted a three-year contract and 90 days to get the circuit up and running." Even simple network changes, like adding static routes to a router, necessitated submitting change tickets to the MPLS provider. To make matters worse, the carrier team responsible for those changes was based in Europe.

"Not only did the carrier require 24 hours, but often the process involved waking me in the middle of the night," Burns says.

MPLS inflexibility hurt more than the business; it hurt Burns' reputation. "I once sat in an executive meeting and learned that we were moving an office," he recalls. "I explained to the other executives (again) that the move would take at least 90 days. They just looked at me like I was crazy."

When Humphreys opened an office in Uruguay, Burns wanted to connect it to his MPLS service. His provider offered only a 1.5 Mbits/s MPLS connection for $1,500 a month, about the same price as his 50 Mbits/s MPLS connection in Dallas. "It was a take-it-or-leave-it kind of deal — so we left it."

SD-WAN Edge Appliances Not Much Better

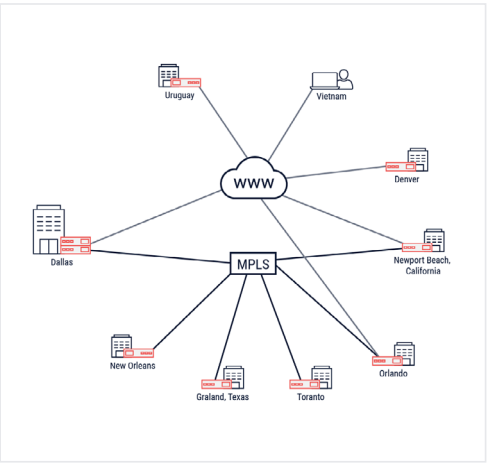
Burns began investigating SD-WAN with Internet connectivity as a way of connecting his Uruguay office, maintaining MPLS for his voice service.

He gradually deployed SD-WAN appliances in Uruguay and four other locations, swapping MPLS inflexibility for SD-WAN complexity. "The configuration pages of the SD-WAN appliance were insane. I've never seen anything so complicated. There were pages upon pages of settings with so many options," says Burns.

"Even the sales engineer got confused and accidentally enabled traffic shaping, limiting our 200 Mbits/s Internet line to 20 Mbits/s."

The appliance-based architecture also proved difficult to get fully working. The SD-WAN appliances had to establish tunnels with one another, but that didn't always happen. "Sometimes Dallas could connect to two sites, but they couldn't connect to each other. The vendor's answer: update our firmware and reboot. But that didn't work."

Ultimately, Burns abandoned the SD-WAN appliance architecture. "It was just the maintenance of it. We would get an e-mail every time there was some SD-WAN-related error. You expect e-mails at 4 am with a telco when it's doing network maintenance and things go down. I don't expect thousands of early morning e-mails from an SDWAN appliance."



Humphrey's network before Cato deployment

Paul Burns
IT Director

HUMPHREYS & PARTNERS ARCHITECTS, L.P.

Converging SD-WAN, Security, and Mobility Simplify Networking

Burns decided to try Cato Cloud, Cato's SD-WAN as a service. "We drop-shipped devices out to New Orleans, and I flew out to install the stuff. Took less than a day, and performance was great."

Eventually he deployed Cato in every location but Garland and Orlando, which were still under MPLS contract. Cato was particularly helpful in connecting locations outside the U.S. "Cato gave us freedom," says Burns. "Now we can use a socket, a VPN tunnel, or the mobile client, depending on location and user requirements."

"My biggest concern with connecting Vietnam to our previous SD-WAN was shipping the appliance. There was the matter of clearing customs and installation. We'd be dealing with a communist country, and I wasn't familiar with its culture. Instead, users can now just download and run Cato's mobile client."

As for the Uruguay office, Burns could use a firewall-initiated IPsec tunnel. "We set up Uruguay in 10 minutes, because we just built a VPN tunnel through the existing firewall," he says.

Burns expects to migrate all local firewalls to Cato. "Our public-facing 'stuff' has been relocated to the datacenter.

The only inbound traffic comes from people 'RDPing' into their computers through Dallas. Now, when we see that, we just fix them up with the Cato VPN."

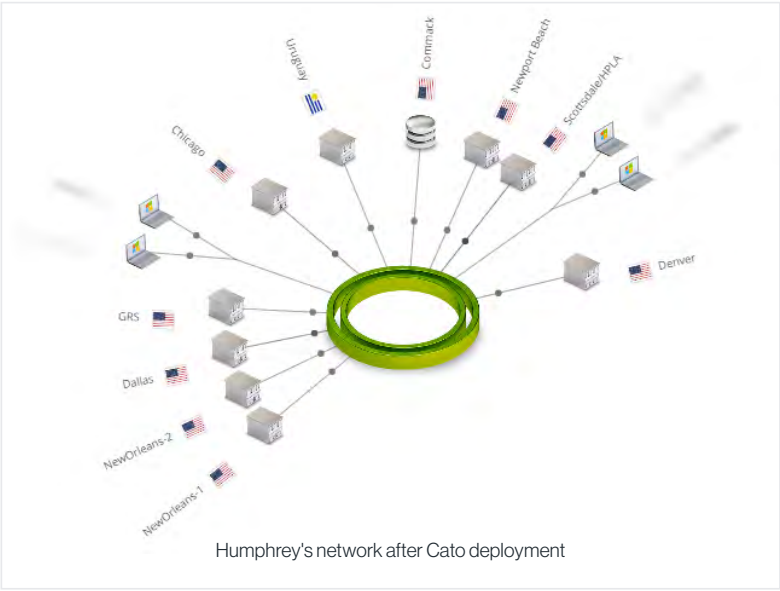
Convergence Brings Business Value

Cato's converging of networking, security, and mobility onto a managed backbone simplified Humphreys' network and helped the business. Bandwidth costs will reduce as Burns phases out MPLS at the remaining locations. He can eliminate MPLS because of Cato Cloud quality and predictability. Cato Cloud's latency and loss levels were more than sufficient for business-grade voice, he reports.

Humphreys was also free to tap the best talent without connectivity concerns. "Our Newport Beach branch wanted to hire a guy in Scottsdale, but we had no office there," says Burns. "With Cato, we just connected him with Cato's mobile client. Without Cato, the guy basically wouldn't work for us, or his functionality would be 25 percent of what it is now."

Burns loved Cato's security features as well. "We hadn't even subscribed to Cato's security services, but we were alerted to potential malware on our users' machines," he notes. "That's something that none of our other network providers can offer."

> "We set out to address our MPLS problem, and along the way we got an affordable MPLS alternative, security solution and mobile VPN solution."



Humphrey's network after Cato deployment

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